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# TENTATIVE ESTIMATES OF WILLAMETTE BASIN ECONOMIC GROWTH TO 1980 AND 2010

Public Health Service
Portland, Oregon

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WORKING PAPER No. 2

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June 1961

Prepared by: Economic Studies Group
Water Supply and Pollution Control
Program, Pacific Northwest
U. S. Public Health Service

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(Basin #7)

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# TENTATIVE ESTIMATES OF WILLAMETTE BASIN ECONOMIC GROWTH TO 1980 AND 2010*

The purpose of this report is to provide some general guides to potential economic growth in the Willamette Basin which will be of assistance to the Engineering Services Group during their data gathering period. These estimates are for internal use only and are intended to indicate a reasonable range of future development. Because of the limited nature of these estimates, industrial activities have been grouped into the broad categories shown below. The percent of the Willamette Basin labor force in each category is also shown. Data are for 1950; 1960 census data are not yet available, but it is felt that the 1950 proportions are still broadly valid.

WILLAMETTE BASIN EMPLOYED LABOR FORCE
(Percentage Distribution as of April 1950)

| | | |
|---|---|---|
| Agriculture | | 9.1% |
| Forestry, Fishing, Mining | | 0.5% |
| Manufacturing | | 21.2% |
| Lumber, plywood, wood prod., furn. | 10.1 | |
| Pulp, paper | 1.1 | |
| Food and kindred products | 2.4 | |
| All other manufacturing | 7.6 | |
| Services (incl. construction) | | 69.2% |
| | | 100.0% |

In addition, population estimates based on demographic procedures are also presented.

For analysis, the Willamette Basin has been divided into three sub-areas: Upper Basin (Lane County); Middle Basin (Benton, Linn, Marion, Polk and Yamhill Counties); and Lower Basin (Multnomah, Clackamas and Washington Counties).

## Agriculture

The estimates for this category (for the purposes of this memorandum) are based on the preliminary results of the Conservation Needs Inventory, examination of historical trends, estimates of the Bureau of Reclamation and the Bureau of Municipal Research study on Lane County Agriculture.

Although practically no change in total cropland acreage is foreseen by 1980, a decrease in farm workers and an increase in total farm output is estimated. Some increase in cropland is anticipated in both the upper

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*Prepared by: Economic Studies Group, Water Supply and Pollution Control Program, Pacific Northwest, U. S. Public Health Service.

and middle basin areas which will offset losses in the lower basin area. For the upper basin area, it has been estimated that there will be a 20 percent decrease in farm workers and a 40 percent increase in farm production. The change in workers and farm production is expected to be of the same order of magnitude in the middle basin area as in the upper basin. The lower basin, however, will probably lose even more workers and will have a smaller increase in production because of the probable net loss of acreage.

Between 1980 and 2010, it is likely that cropland will decrease somewhat throughout the basin and the changes in employment and production will be of a lesser magnitude than for the 1960-1980 period.

Irrigated acreage in the basin might increase several-fold during the study period from the approximately 160,000 irrigated acres in the Willamette Valley in 1959.

Lumber, Plywood, and Allied Manufacturing

The estimates for this category and for the category of Pulp and Paper Manufacturing which follows have been adapted mainly from various estimates and studies of the U. S. Forest Service and the recent study sponsored by Resources For the Future.[1/] The estimates presented in this memorandum are not too dissimilar (when the difference in area is considered) from the 1958 report of the Corps of Engineers, "Water Resource Development, Columbia River Basin".

Based on these various estimates, it appears reasonable to expect lumber production to increase at least 10 percent by 1980, with a further similar increase by 2010. For plywood, veneer, and composition board production, the increase is expected to be somewhat more than double that of lumber.

Although lumber production increases are likely to occur mainly in the upper basin during the periods to 1980, later production increases will reflect the maturing of timber stands in the middle and lower basins. Plywood, veneer, and board production increases are most likely to occur in the upper basin area.

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1/"Western Forest Industry, An Economic Outlook," by John A. Guthrie and George R. Armstrong.

Pulp and Paper Manufacturing

These estimates are based on a review of the same materials described in the previous section. It is considered reasonable to expect additional pulp mill capacity of at least several hundred tons per day in the upper basin area by 1980. A comparable increase in capacity is likely in the middle basin by 2010. The increase in capacity in each basin might result from expansion of existing pulp mills or construction of new facilities (or both).

Food and Kindred Manufacturing

This industry is expected to increase at a rate somewhat greater than would be explained by population growth alone. This additional growth will be the result of changes in crop types and farming methods which are likely with the increase in irrigated acreage. By 1980 a growth of from 30 to 50 percent appears reasonable. By 2010 this industry could be double (or more) its present size.

Other Manufacturing

On the basis of population projections by the U. S. Census Bureau and of trends in the labor force relative to total population and manufacturing relative to the total labor force, it is tentatively estimated that total manufacturing employment in the Willamette Basin in 1980 will be approximately double what it was in 1950. The increase from 1980 to 2010 is expected to be at a somewhat slower rate, due to a decrease in the projected rate of population growth and to an anticipated decline in manufacturing employment as a percent of total employment. The latter assumption is predicated upon the belief that automation will be increasingly applied to manufacturing activities but that service-type industries are less amenable to automation. It is estimated that total manufacturing employment in the Willamette Basin in 2010 will be about three times the number in 1950.

Assuming the growth rates projected in the preceding paragraphs for lumber and wood products, pulp and paper, and food and kindred projects, employment in these industries will represent a declining portion of total manufacturing employment in the Willamette Basin. While employment in these industries represented about two-thirds of total manufacturing in the Basin in 1950, it is expected that they will represent only about one-third by 2010. Among the other manufacturing industries, which will constitute a growing proportion of total manufacturing employment, no great growth is foreseen in any single industrial category. Rather, a broad diversification of the manufacturing economy is anticipated.

## The Population Outlook

Projections of national and state population by the U. S. Census Bureau and the Kerr Committee on National Water Resources were used as guides in the preparation of this estimate. These projections will be subject to further analysis, but, in terms of these projections, and considering historic trends in the Willamette Basin's share of total State population tentative estimates of Basin population are: 1980, 2,600,000; and 2010, 3,000,000.

ADDENDUM NO. 1

December 7, 1961

## MID-WILLAMETTE VALLEY POPULATION, APRIL 1, 1960, DISTRIBUTED BY TRIBUTARY BASIN

The Mid-Willamette Valley is defined to include all of Linn, Marion, Polk and Yamhill Counties, and all of Benton County except the Alsea Census County Division, which is west of the Willamette Basin divide.

Only the population within these counties is included in the following figures. To obtain the total population in those tributary basins that extend outside the Mid-Willamette Valley (Tualatin, Pudding, Muddy Creek and Long Tom), the population in contiguous portions of adjacent counties would have to be included.

The Salem Urban Area, consisting of the Four Corners, Hayesville, Keizer, Salem City, and Salem Heights Census County Divisions in Marion County, and the portion of Salem City in Polk County, is not included in any tributary basin, but is shown separately in the table below.

All areas not in one of the 13 tributary basins shown below have been included in "Willamette Main Stem".

| Tributary Basin | Benton County | Linn County | Marion County | Polk County | Yamhill County | Total in Tributary Basin, or portion in Mid-Willamette Valley | Area of Tributary Basin, if entirely in Mid-Willamette Valley | Persons per square mile in tributary basin |
|---|---|---|---|---|---|---|---|---|
| | (Population rounded to nearest hundred) | | | | | | (sq.mi.) | |
| 1. Tualatin | - | - | - | - | 600 | 600 | x | x |
| 2. Yamhill | - | - | - | 3300 | 22700 | 26000 | 770 | 34 |
| 3. Pudding | - | - | 25300 | - | - | 25300 | x | x |
| 4. North Santiam | - | 2800 | 6100 | - | - | 8900 | | |
| 5. South Santiam | - | 26300 | - | - | - | 26300 | 1820 | 21 |
| 6. Santiam below junction of N.& S. Forks | - | 600 | 1800 | - | - | 2400 | | |
| 7. Mill Creek | - | - | 6400 | - | - | 6400 | 135 | 47 |
| 8. Rickreall | - | - | - | 7900 | - | 7900 | 106 | 75 |
| 9. Luckiamute | 1300 | - | - | 2900 | - | 4200 | 310 | 14 |
| 10. Marys | 8500 | - | - | - | - | 8500 | 300 | 28 |
| 11. Calapooya | - | 8200 | - | - | - | 8200 | 362 | 23 |
| 12. Muddy Creek | - | 1300 | - | - | - | 1300 | x | x |
| 13. Long Tom | 1000 | - | - | - | - | 1000 | x | x |
| 14. Salem Urban Area | - | - | 72800 | 3900 | - | 76700 | | |
| 15. All other (Willamette Main Stem) | 27600 | 19700 | 8500 | 8500 | 9200 | 73500 | | |
| TOTAL COUNTY | 38400* | 58900 | 120900 | 26500 | 32500 | | | |
| TOTAL IN MID-WILLAMETTE BASIN | | | | | | 277200* | | |

x - Portion of area lies outside Mid-Willamette Valley: figures for total basin will be shown in separate table.

* - Excludes 857 in Benton County's Alsea Census County Division.